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SINOCULOSAPPHIRINA DEEVEYAE, A NEW BATHYPELAGIC GENUS AND SPECIES OF THE FAMILY SAPPHIRINIDAE (COPEPODA: POECILOSTOMATOIDA) FROM THE SARGASSO SEA OFF BERMUDA

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ABSTRACT

Sinoculosapphirina deeveyae, a new genus and species of the family Sapphirinidae is described, based on two females from the Sargasso Sea. It differs from the three other genera in the family in the absence of cuticular lenses from the prosome of the female and in the combination of a relatively unmodified body form, a 3-segmented endopod on leg 4 and elongate, flattened caudal rami.

In their comprehensive account of the copepod species composition of the Sargasso Sea, Deevey and Brooks (1977: 287) reported a large unidentified cyclopoid taken at Station "S" on two occasions in 1969. The two specimens, both females, were taken at between 1,000 and 2,000 m in a net of mesh aperture 0.202 mm (Deevey and Brooks, 1977). These specimens cannot be assigned to any known genus although they display a clear affinity to members of the family Sapphirinidae, within the recently established order Poecilostomatoida (Kabata, 1979).

Sinoculosapphirina deeveyae new genus and species
Figures 1 and 2

Description.—Adult female body cyclopiform (Fig. 1a), slightly flattened dorsoventrally. Prosome 5-segmented, truncate anteriorly, without cuticular lenses. Urosome (Fig. 1b) 5-segmented, excluding caudal rami about one third as long as prosome; relative lengths of urosomites and caudal rami 7:22:5:5:14:47. Genital somite swollen laterally, 1.2 times wider than long, with maximum width just anterior to midlength. Caudal rami missing in paratype, in holotype dorsoventrally flattened, about six times longer than wide, with most of armature elements missing. Body length of holotype female 3.5 mm.

First antenna (Fig. 1f) 5-segmented; relative lengths of segments 19:49:15:8:9, most armature elements missing from type-specimens. Second antenna (Fig. 1e) 5-segmented; relative lengths of segments 25:42:6:19:8; first segment with 1 subapical setule on inner margin, second segment with 1 setule near midlength of inner margin, third segment with 2 setules at inner distal angle, fourth segment with 1 outer apical setule, fifth segment forming a curved claw bearing a single setule proximally. Labrum (Fig. 1h) projecting posteroventrally, bilobed, with a small fringe of minute pinnules near apex of each lobe. Mandible (Fig. 1c) a falcate blade bearing 2 marginal rows of denticles. First maxilla (Fig. 1d) a simple elongate process bearing 1 naked seta on inner margin and 3 on distal margin. Second maxilla (Fig. 1g) 2-segmented, comprising a robust basal segment and a short apical segment bearing 3 terminal elements; a spinous process bearing small pinnules along 1 margin, a pinnate seta and a subapical seta. Maxilliped (Fig. 2a) 3-segmented; basal segment unarmed, middle segment with 2 setae on distal half of inner margin, apical segment with 2 distal processes, 1 slender spiniform process with a naked seta inserted near its base and 1 short blunt process bearing an apical setule.

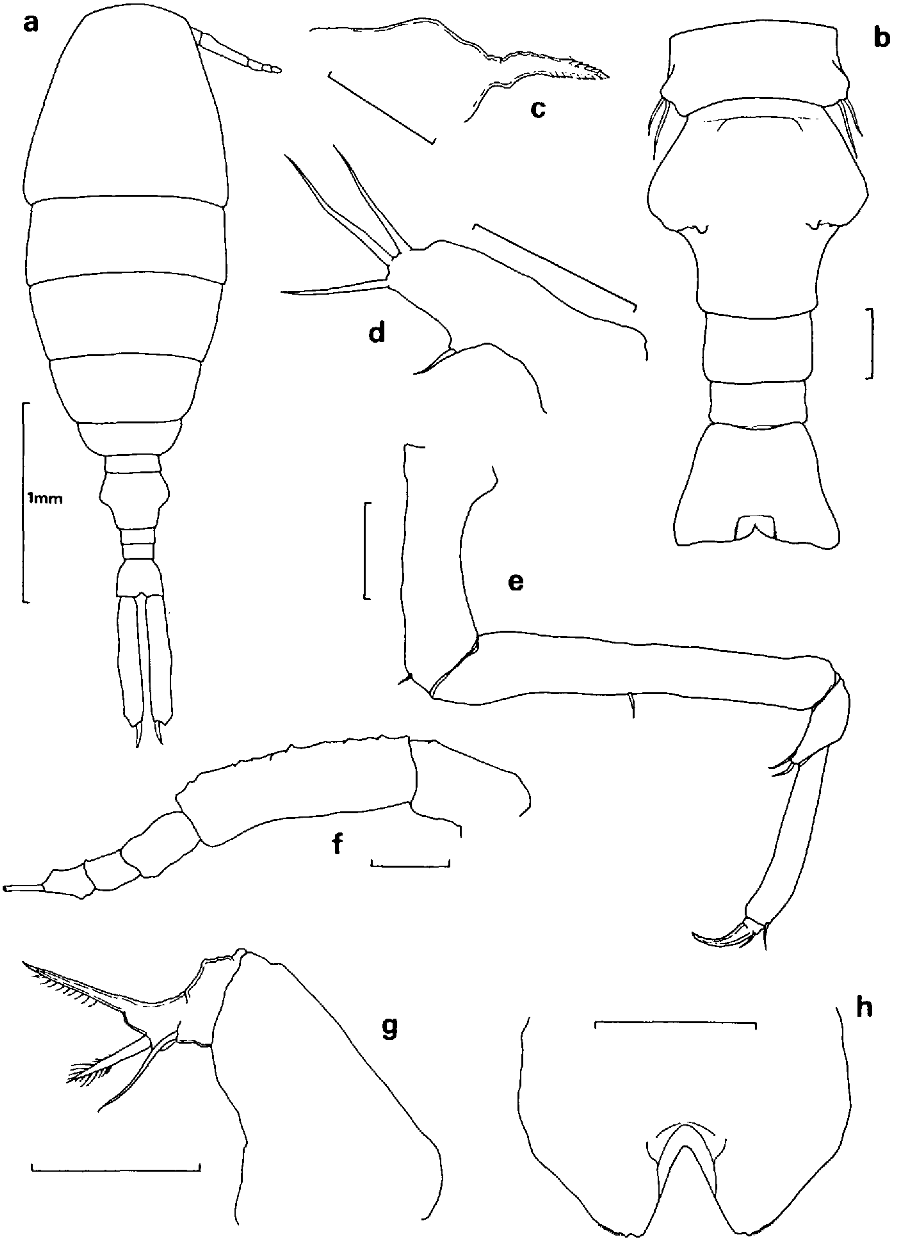

Figure 1. *Sinoculosapphirina deeveyae* new genus and species. a, holotype, dorsal; b, paratype urosome, ventral; c, holotype mandible; d, first maxilla; e, second antenna; f, first antenna; g, second maxilla; h, labrum. Bar scales 100 μm unless otherwise stated.

Swimming legs 1 to 4 (Figs. 2b–e) biramous, with 3-segmented rami. Armature formula as follows:

	Coxa	Basis	Endopod	Exopod
Leg 1	0–1	1–0	0–1; 0–1; (I, I, 4)	I–0; I–1; III, I, 4
Leg 2	0–1	1–0	0–1; 0–2; (I), II, 3	I–0; I–1; III, I, 5
Leg 3	0–1	1–0	0–1; 0–2; I, II, 2	I–0; I–1; III, I, 5
Leg 4	0–1	(1)–0	0–1; 0–1; 0, II, 0	I–0; I–1; (II), I, 5

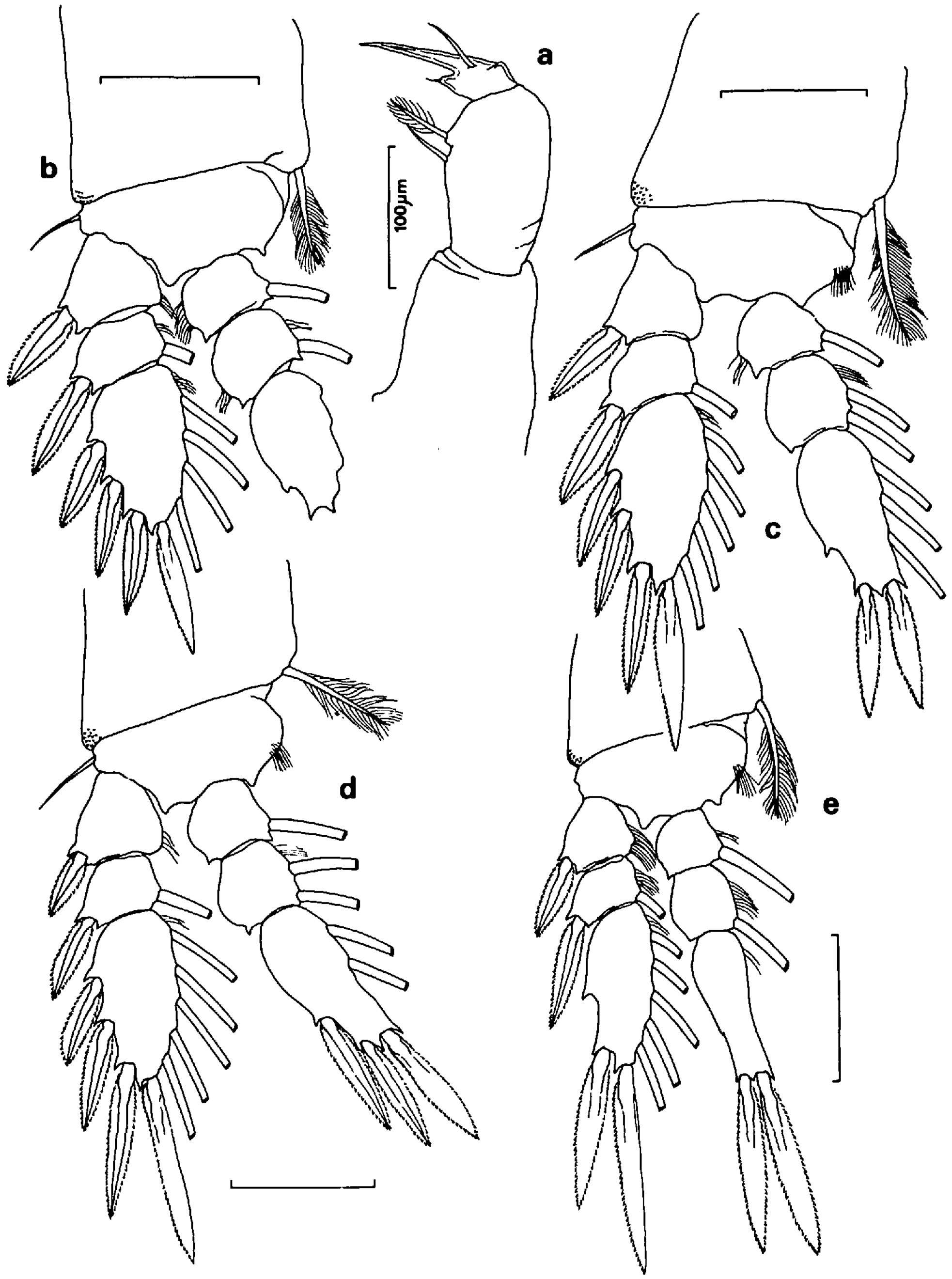

Figure 2. *Sinoculosapphirina deeveyae* new genus and species. a, holotype maxilliped; b, paratype leg 1; c, leg 2; d, leg 3; e, leg 4. Bar scales 200 µm unless otherwise stated.

(Elements in parentheses have been lost from both type specimens but are represented by scars on the surfaces of the segments). Outer margin spines on all exopod segments and all spines on endopods bilaterally serrate, apical spines on exopod segment 3 serrate on outer margin and smooth on inner margin. Small patch of denticles present around outer distal angle of coxa of legs 1 to 4 and a small patch of setules present on inner margin of basis of legs 2 to 4. Leg 5 (Fig. 1b) reduced, comprising 2 setae inserted on raised posterolateral angles of urosomite 1.

Type-material.—Holotype ♀ BM(NH) Reg. No. 1980.22, 1 paratype ♀ USNM 173941.

Type-locality.—Station "S" (32°10′N, 64°30′W), Sargasso Sea, at 1,000–1,500 m (holotype) and 1,500–2,000 m (paratype) (Deevey and Brooks, 1977).

Remarks.—The new genus clearly belongs to the family Sapphirinidae which at present contains only 3 genera, *Sapphirina* Thompson, 1829, *Copilia* Dana, 1849, and *Vettoria* Wilson, 1924. The latter is the replacement name proposed by Wilson (1924) for the preoccupied *Corina* Giesbrecht, 1892. *Corissa* Farran, 1936 has recently been recognised as a synonym of *Vettoria* (Hure and Scotto di Carlo, 1967). *Sinoculosapphirina* resembles *Vettoria* in general body facies as both genera display only slight dorsoventral flattening of the body but *Vettoria* species have only 4 urosomites compared to 5 in *Sinoculosapphirina*. Species of both *Sapphirina* and *Copilia* are sexually dimorphic. In both genera the males have very flattened foliaceous bodies whereas female *Copilia* have a slightly flattened prosome and cylindrical urosome, and female *Sapphirina* have a foliaceous prosome but a less flattened urosome that is usually narrower than the prosome. Both sexes of these two genera differ markedly from *Sinoculosapphirina* in general facies.

Although the appendages are relatively uniform in structure and armature throughout the Sapphirinidae, the new genus most closely resembles *Sapphirina* in its antennae, mouthparts and swimming legs. In particular, the presence of bilaterally serrate spines on the endopods of swimming legs 1 to 4 is a character shared with *Sapphirina* species but not with species of *Vettoria* or *Copilia*. Also in both *Sapphirina* and *Sinoculosapphirina* the endopod of leg 4 is 3-segmented whereas in *Vettoria* it is 2-segmented and in *Copilia* 1-segmented. However, in the structure of the caudal rami the new genus is similar to *Vettoria parva* (Farran, 1936) and *V. longifurca* (Rose and Vaissière, 1952) both of which possess flattened, elongate caudal rami.

Sinoculosapphirina differs from all other genera in the absence of cuticular lenses from the anterior surface of the prosome in the female. It is from this character that the new generic name is derived. Both sexes of *Sapphirina* and *Vettoria* species and the females of *Copilia* species possess cuticular lenses, only the males of *Copilia* species lack them. The presence of lenses in female *Copilia* suggests that their absence from the male is a secondary condition. The absence of such lenses from *Sinoculosapphirina*, when considered together with the relatively unmodified body form and the 3-segmented nature of leg 4 may be interpreted as a primitive character, suggesting that the new genus diverged from the rest of the sapphirinid-line at an early date and that it may be similar morphologically to the ancestral sapphirinid stock.

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